

Listing of the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1 - 34. (Cancelled)

35. (currently amended) A nucleic acid molecule comprising ~~two or more~~ multiple copies of a repeat-containing sequence and multiple restriction enzyme cleavage sites, wherein said repeat-containing sequence is a double-stranded polynucleotide having from about 5 to about 1000 base pairs, and wherein the top strand of said repeat-containing sequence has substantially the same percentage of each respective nucleotide as in the bottom strand, and wherein a said restriction site is sites are created by the junction of adjacent copies of said repeat-containing sequence.

36. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is a DNA molecule.

37. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is an RNA molecule.

38. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is a DNA/RNA hybrid molecule.

39. (previously added) The nucleic acid molecule of claim 35, wherein said repeat-containing sequence is a double stranded polynucleotide having from about 5 to about 100 base pairs.

40. (previously added) The nucleic acid molecule of claim 35, wherein said repeat-containing sequence is a double stranded polynucleotide having about 10 base pairs.

41. (previously added) The nucleic acid molecule of claim 35, wherein said repeat-containing sequence comprises a palindromic nucleotide sequence.

42. (currently amended) ~~A The nucleic acid molecule of Claim 35, wherein comprising two or more copies of a repeat-containing sequence, wherein a restriction site separates adjacent copies of said repeat-containing sequence, and wherein the nucleotide sequence of the top strand of said repeat-containing sequence is selected from the group consisting of: ATCTCAGGAT (SEQ ID NO: 1), ATCAGTCGAT (SEQ ID NO: 2), ATCGCATGAT (SEQ ID NO: 3), ATCATGCGAT (SEQ ID NO: 4), and complements thereof the complement of SEQ ID NO:1, the complement of SEQ ID NO: 2, the complement of SEQ ID NO: 3 and the complement of SEQ ID NO: 4.~~

43. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule comprises from about 2 to about 500 copies of said repeat-containing sequence.

44. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule comprises from about 20 to about 100 copies of said repeat-containing sequence.

45. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule comprises from about 200 to about 300 copies of said repeat-containing sequence.

46. (previously added) The nucleic acid molecule of claim 35, wherein said restriction site is a restriction site that produces blunt-ends upon restriction digestion.

47. (currently amended) The nucleic acid molecule of claim 46, wherein said restriction site is selected from the group consisting of: AluI, DraI, Eco47III, EcoRV, FspI, HpaI, MscI, NruI, PvuII, RsaI, ScaI, SmaI, SspI, StuI, and ~~ThaI and DraI~~.

48. (previously added) The nucleic acid molecule of claim 35, wherein said restriction site is a restriction site that produces sticky-ends upon restriction digestion.

49. (previously added) The nucleic acid molecule of claim 48, wherein said restriction site is selected from the group consisting of: AvaI, BamHI, BanII, BglII, ClaI, EcoRI, HindIII, HpaII, KpnI, MseI, NcoI, NdeI, NotI, PstI, PvuI, SacI, SalI, XbaI and XhoI.

50. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is in circular form.

51. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is in linear form.

52. (currently amended) A vector comprising a nucleic acid molecule comprising two or more multiple copies of a repeat-containing sequence and multiple restriction enzyme cleavage sites, wherein said repeat-containing sequence is a double-stranded polynucleotide having from about 5 to about 1000 base pairs, and wherein the top strand of said repeat-containing sequence has substantially the same percentage of each respective nucleotide as in the bottom strand, and wherein a said restriction site is sites are created by the junction of adjacent copies of said repeat-containing sequence.

53. (previously amended) The vector of claim 52, wherein said vector comprises one or more origins of replication or one or more selectable markers.

54. (previously added) The vector pAH102.4

55. (previously added) A sizing ladder comprising two or more nucleic acid fragments, wherein said sizing ladder is produced by at least partially digesting the nucleic acid molecule of claim 35 with a restriction endonuclease that cleaves at said restriction site.

56. (previously added) The sizing ladder of claim 55, wherein said two or more nucleic acid fragments are of varying sizes, and wherein the size of each nucleic acid fragment is a multiple of the size of said repeat-containing sequence.

57. (previously added) The sizing ladder of claim 56, wherein said sizing ladder comprises multiple nucleic acid fragments increasing in size by 10 base pair increments, the largest fragment being 330 base pairs in length.

58. (previously added) The sizing ladder of claim 55, wherein said nucleic acid fragments are single stranded.

59. (previously added) The sizing ladder of claim 55, wherein said nucleic acid fragments are detectably labeled.

60. (previously added) The sizing ladder of claim 59, wherein said nucleic acid fragments are detectably labeled with a radiolabel, a fluorescent label or a chemiluminescent label.

61. (previously added) The sizing ladder of claim 58, wherein said nucleic acid fragments are detectably labeled.

62. (previously added) The sizing ladder of claim 61, wherein said nucleic acid fragments are detectable labeled with a radiolabel, a fluorescent label or a chemiluminescent label.

63. (previously added) A host cell comprising the nucleic acid molecule of claim 35.

64. (previously added) A host cell comprising the vector of claim 52.

65. (previously added) a method for making a sizing ladder, said method comprising:

- (a) mixing the nucleic acid molecule of claim 35 with a restriction enzyme that cleaves at said restriction site; and
- (b) incubating said mixture under conditions favoring the cleavage of said nucleic acid molecule at said restriction site.

66. (previously added) The method of claim 65, further comprising treating said mixture under conditions favoring the formation of single-stranded nucleic acid molecules.

67. (previously added) The method of claim 66, wherein said conditions favoring the formation of single-stranded nucleic acid molecules are heat denaturation or chemical denaturation.

68. (previously added) A method for determining the size of a nucleic acid molecule, said method comprising:

- (a) separating the sizing ladder of claim 55 and said nucleic acid molecule according to size; and
- (b) determining the size of said nucleic acid molecule by comparison to said sizing ladder.

69. (previously added) The method of claim 68, wherein said separating is accomplished by electrophoresis on an agarose gel.

70. (previously added) The method of claim 68, wherein said separating is accomplished by electrophoresis on an a polyacrylamide gel.

71. (previously added) A kit comprising one or more containers, wherein a first container contains the nucleic acid molecule of claim 35.

72. (previously added) A kit comprising one or more containers, wherein a first container contains the sizing ladder of claim 55.

73. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is a cosmid or plasmid.

74. (previously added) The nucleic acid molecule of claim 35, wherein said nucleic acid molecule is linear.

75. (previously added) A sizing ladder comprising two or more nucleic acid fragments, wherein said sizing ladder is produced by at least partially digesting the vector of claim 52 with a restriction endonuclease that cleaves at said restriction site.

76. (previously added) A method for making a sizing ladder, said method comprising:

(a) mixing the vector of claim 54 with a restriction enzyme that cleaves at a restriction site of said vector; and

(b) incubating said mixture under conditions favoring the cleavage of said nucleic acid molecule at said restriction site.

77. (previously added) A kit comprising one or more containers, wherein a first container contains the vector of claim 54.